NEW GENUS AND SPECIES OF AMPHIPSOCIDAE FROM SOUTHEASTERN ASIA (PSOCOPTERA) [1]

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ABSTRACT: *Calocaecilius* n. gen. is described with *C. decipiens* n. sp. as its type and only known species. The species occurs in Malaysia and the Philippine Islands. The genus is assigned to Amphipsocidae but is not closely related to any known amphipsocid genera. It is similar in superficial appearance to the psocids of the family Calopsocidae. It is suggested that both groups mimic coccinellid beetles.

DESCRIPTORS: Psocoptera; Amphipsocidae; *Calocaecilius* new genus, *Calocaecilius decipiens* new species.

A new genus described below shows in general the characters of Group Caecilietae as stated by Badonnel (1951). It is placed in Amphipsocidae as defined by Badonnel (1955) because of possession of the following characters: (1) robust wings, (2) costa broad and densely setose from base of pterostigma to apical curve in forewing, (3) forewing veins bearing long, strong, upright setae in more than one rank. The new genus is apparently not very closely related to any of the known amphipsocid genera.

Abbreviations used for the measurements in the description are explained as follows: FW.L. = forewing length; T = length of posterior tibia; t_1 = length of posterior basal tarsomere; t_2 = length of posterior distal tarsomere; $t_1$ct = number of ctenidia on posterior basal tarsomere; IO/D = smallest distance between compound eyes dorsally divided by greatest antero-posterior diameter of compound eye in dorsal view; PO = greatest lateral diameter of compound eye in dorsal view divided by greatest antero-posterior diameter of the eye in dorsal view.

Calocaecilius gen. nov.
Type species: *Calocaecilius decipiens* n.sp.

Vertex slightly extended and flattened behind compound eyes. Antennae slender, about two-thirds length of forewing, bearing sparse semi-upright setae. Lacinial tip (Fig. 3) bicuspid. Forewing (Fig. 1) somewhat coriaceous and elytriform, the surface textured with

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slight wrinkling. Hairs on veins in forewing restricted to dorsal surface. Pterostigma greatly shortened. Areola postica open basally due to absence of vein Cu_{1b}. Hindwing (Fig. 2) broad, with ciliation developed around entire margin except for a hiatus on anterior margin from near wing base to end of vein R_1. Two ventral abdominal vesicles present, one between segments four and five, the other between segments five and six. Gonapophyses of either side (Fig. 6) arising close together from a strongly sclerotized basal shaft; first valvula curving gradually from its departure from shaft nearly to its tip; rudimentary third valvula bearing a single seta. Subgenital plate (Fig. 7) cornered laterally on posterior margin but without protruding apophyses at corners; its pigmentation two diverging arms broadly separated medially. Glandular area of spermathecal duct (Fig. 4) elongate and slender. Epiproct (Fig. 5A) short and wide, densely setose in distal half. Paraproct (Fig. 5B) setose along posterior margin and with scattered setae elsewhere; a small field of short spines on posterior margin ventrally; sense cushion rounded, bearing approximately 26 trichobothria.

Calocaecilius decipiens, n.sp. (♀)

Measurements (in microns).--

	FW.L.	T	t_1	t_2	t_1ct	IO/D	PO
Holotype	3200	975	224	125	9	2.43	0.70
Paratype	2772	971	281	106	13	2.54	0.78
Other ♀	3194	967	223	115	8	2.41	0.68

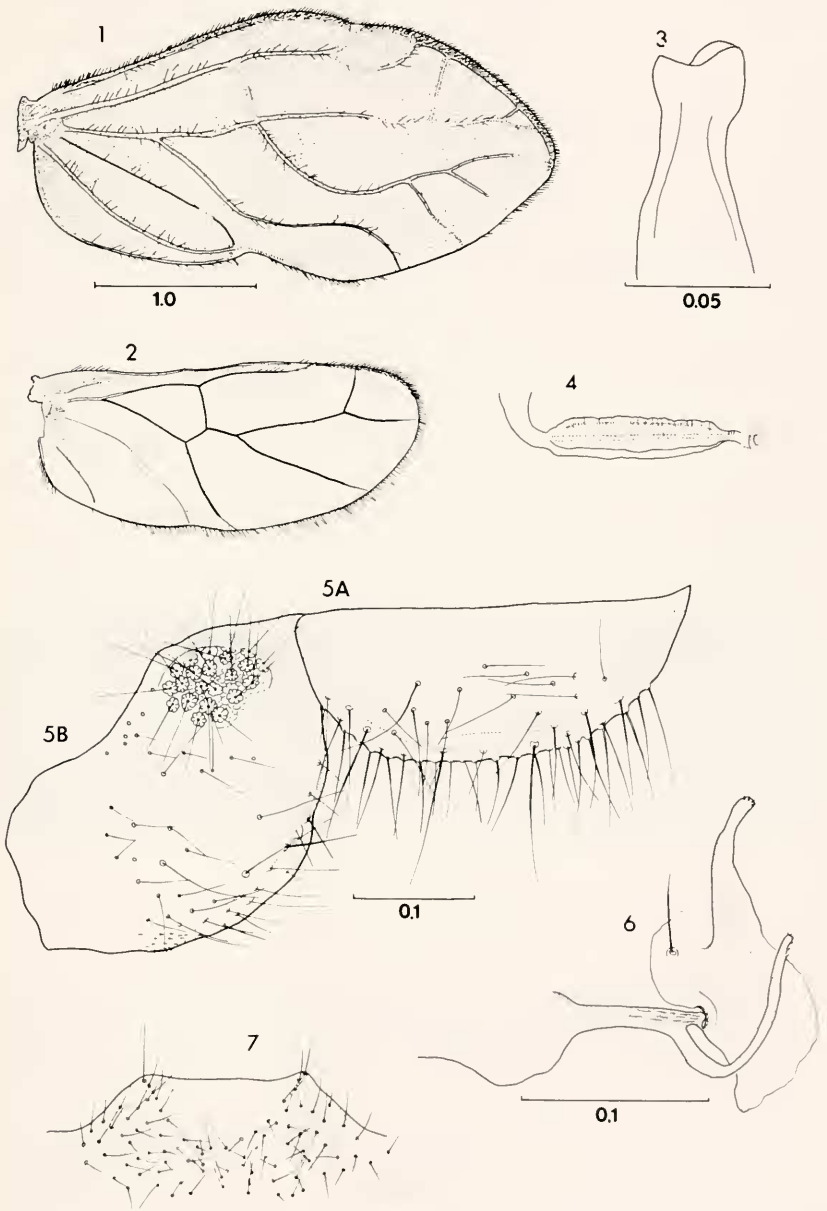
Morphology.--As described for the genus.

Color (in alcohol).--Compound eyes black. Head in general pale yellowish-brown; ocellar interval and labrum medium brown. Antennae and legs pale yellowish-brown. Thoracic terga medium brown except creamy yellow along sutures. Thoracic pleura pale reddish-brown. Wings brown-washed, forewings more strongly so than hindwings. Preclunial abdominal segments dark reddish-brown. Clunium, epiproct, and paraprocts medium brown.

Holotype ♀ and 1♀ paratype.--Philippine Islands: Mindanao: Davao Prov.: eastern slope of Mount McKinley, 7 Sept. 1946, el. 3300 ft., coll. F. G. Werner. Types will be deposited in the Field Museum, Chicago, Ill.

Additional record.--Malaysia: Pahang State: road from 'The Gap' to Frazer's Hill, 24 Nov. 1966, beating dry leaves of low trees, 1♀, coll. E. L. Mockford.

Discussion.--This insect has a striking superficial resemblance to the psocids of the family Calopsocidae, which are also southeast-Asian. The resemblance is caused primarily by the broad, coriaceous forewings of both and by presence of a decided bend in the costa on the anterior margin of the forewing. In *Calocaecilius*, the bend occurs at the base of the pterostigma, while in the calopsocids it occurs at the distal end of the pterostigma. In either case, the wing margin distal to the bend stands at about 130 degrees to the margin basal to the bend. The bend continues across the wing, but posterior to the margin it is not so strongly expressed. The result is that the wing surface from the region of the bend to the tip appears rounded downward when the wings are folded, so that they resemble the elytra of a beetle. The flattening of the posterior head margin is only slight in *Calocaecilius* as opposed to the calopsocids, in which the posterior head margin is blade-like. In both groups, however, the head



Figs. 1-7. Structures of *Calocaecilius decipiens,* n. gen., n.sp., holotype ♀ . Fig. 1. Forewing (fork of vein R_{4+5} is an anomaly present only on one side of one individual). Fig. 2. Hindwing (same scale as forewing). Fig. 3. Lacinial tip. Fig. 4. Duct of spermatheca (same scale as Fig. 6). Fig. 5A. Epiproct. Fig. 5B. Paraproct. Fig. 6. Right gonapophyses. Fig. 7. Subgenital plate (half scale of Fig. 5). Scales in mm.

flattening allows the head to be closely appressed to the pronotum. I have observed living calopsocids in the field in Assam and Queensland, and I find the total effect of their appearance and gait is reminiscent of a coccinellid beetle. Accordingly, I believe that the calopsocids are coccinellid mimics. The resemblances between *Calocaecilius* and the calopsocids are explainable, then, on the basis of the former being a member of the same mimetic complex as the latter.

ACKNOWLEDGEMENTS

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LITERATURE CITED

Badonnel, A. 1951. Psocopteres. *In* Grasse, P. "Traite de Zoologie". Paris. Vol. 10, fasc. 2: 1301-1340.

Badonnel, A. 1955. Psocopteres de l'Angola. Diamang Pub. Cult. 26: 1-267.

The Entomologist's Library

This section contains titles of books, monographs, and articles received by the editor that may be of special interest to entomologists and biologists. A brief statement of contents and items of interest are noted. Brief analytical reviews may be submitted for possible publication. All correspondence for this section should be addressed to the editor.

BOOK REVIEW

THE PEST WAR. W. W. Fletcher. 1974. Halsted Press, John Wiley & Sons, N.Y. 218 pages. 19 photos. $11.95.

Although not limited to insect pests (other pests treated are insect relatives, weeds, fungi and certain vertebrate pests), the main thrust of this book is a review of the various methods of insect and weed control. The development and use of chemicals for pest control forms the main bulk of this book and methods discussed include pesticides, insecticides, herbicides and fungicides.

Also included is a chapter on so-called novel control methods such as sterilization and sex and food lures, and a fine chapter on biological control, following which the author, who is "internationally known as an expert on pesticides" concedes that the future may lie with *integrated* control, making use of both chemical and biological methods.

Concluding chapters document the breat benefits accrued to mankind through the use of pesticides and review how their use can and must be controlled by government and other agencies so that no permanent damage will be sustained by the environment. A very complete list of references is provided for further reading, together with listings of the common and scientific names of all pests and the common and chemical names of all pesticides mentioned in the text.